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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/080,751	02/22/2002	Brian C. Banister	LSI-004-CIP	8423
<div>7590 11/05/2007 JAQUEZ &amp; ASSOCIATES 6265 Greenwich Drive SUITE 100D SAN DIEGO, CA 92122-5916</div>			<div>EXAMINER BURD, KEVIN MICHAEL</div>	
			<div>ART UNIT 2611</div>	<div>PAPER NUMBER</div>
			<div>MAIL DATE 11/05/2007</div>	<div>DELIVERY MODE PAPER</div>

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/080,751	<b>Applicant(s)</b> BANISTER, BRIAN C.	
	<b>Examiner</b> Kevin M. Burd	<b>Art Unit</b> 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 August 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,4-8,12-15,18,20-22,24-45 and 47-57 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6-8,20-22,26-33,51,56 and 57 is/are allowed.
- 6) ☒ Claim(s) 1,4,5,12,13,24,25,41-45,47-50 and 52-54 is/are rejected.
- 7) ☒ Claim(s) 14,15,18,34-40 and 55 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

1. This office action, in response to the amendment and request for continued examination (RCE) filed 8/17/2007, is a non-final office action.

***Continued Examination Under 37 CFR 1.114***

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/17/2007 has been entered.

***Response to Arguments***

3. Applicant's arguments filed 1/30/2007 regarding the rejection of claims 1, 4, 5, 12, 13 and 41-45 under 35 U.S.C. 102(e) as being anticipated by Raleigh et al (US 6,144,711) have been fully considered but they are not persuasive. Raleigh discloses the transmitter spatial vector weights within each SOP bin increases the power delivered to the desired receiver within one or more spatial subchannels while reducing interference radiated to unintended receivers (column 6, line 66 to column 7, line 4). These weights are for the individual target and the weights will change as power to the desired receiver increases and reduces interference to the unintended receivers. The amount of the weights will depend on the average interference radiated to the

unintended receivers (column 7, lines 4-23) and therefore, is dependent on the particular number of unintended receivers.

For these reasons, and the reasons stated in the previous office action, the rejections of the claims are maintained and stated below.

Applicant's arguments with respect to claims 24 and 25 have been considered but are moot in view of the new ground of rejection.

A rejection of new claims 47-50 and 52-54 is stated below.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 24, 25 and 52-55 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 24, 25 and 52-55, the limitation of "indicates which of the plurality of corresponding transmit probing signals generated in act (c) for each receiver was received better". It is unclear what "was received better" means. Is the receiver quality better than a threshold, better than another receiver, better than all the receivers in terms of quality? Is the "better" determined in terms of something other than quality? Correction is required. Claims 25 and 50-52 are rejected due to dependence on claim 24.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 4, 5, 12, 13 and 41-45 are rejected under 35 U.S.C. 102(e) as being anticipated by Raleigh et al (US 6,144,711).

Regarding claims 1, 43 and 44, Raleigh discloses an apparatus and a method of using the apparatus for generating weighted transmit signals with nulling in a communication system, wherein the communication system includes a transmitter and a plurality of receivers (figure 9), and wherein the transmitter includes a plurality of antennas (figure 11). A parameter set is initialized to some starting value (the reciprocity in a radio link that allows the undesired receive interference subspace in each SOP bin to be accurately used to describe the transmitter subspace) (column 21, lines 33-51). A weight vector is set to some initial value (column 6, line 66 to column 7, line 4). The transmitter spatial vector weights within each SOP bin increases the power delivered to the desired receiver within one or more spatial subchannels while reducing interference radiated to unintended receivers (column 6, line 66 to column 7, line 4). This transmission will change the undesired receiver interference and therefore change the

parameter set. This process will be repeated until the interference radiated to unintended receivers is removed or the transmission is complete.

Regarding claim 4, Raleigh discloses the system is a multiple access communication system (column 36, lines 6-16).

Regarding claim 5, Raleigh discloses the transmitter spatial vector weights within each SOP bin increases the power delivered to the desired receiver within one or more spatial subchannels while reducing interference radiated to unintended receivers (column 6, line 66 to column 7, line 4).

Regarding claims 12 and 13, updating of the weight vector is based upon feedback from the receivers (column 21, lines 33-51).

Regarding claims 41 and 45, Raleigh discloses an apparatus and method of using the apparatus for generating weighted transmit signals with nulling in a communication system, wherein the communication system includes a transmitter and a plurality of receivers (figure 9), and wherein the transmitter includes a plurality of antennas (figure 11). Channel estimates are initialized to some starting value (the reciprocity in a radio link that allows the undesired receive interference subspace in each SOP bin to be accurately used to describe the transmitter subspace) (column 21, lines 33-51). A weight vector is set to some initial value (column 6, line 66 to column 7, line 4). The transmitter spatial vector weights within each SOP bin increases the power delivered to the desired receiver within one or more spatial subchannels while reducing interference radiated to unintended receivers (column 6, line 66 to column 7, line 4). This transmission will change the undesired receiver interference and therefore change

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the channel estimates. This process will be repeated until the interference radiated to unintended receivers is removed or the transmission is complete.

Regarding claim 42, Raleigh discloses an apparatus for generating weighted transmit signals with nulling in a communication system, wherein the communication system includes a transmitter and a plurality of receivers (figure 9), and wherein the transmitter includes a plurality of antennas (figure 11). A parameter set is initialized to some starting value (the reciprocity in a radio link that allows the undesired receive interference subspace in each SOP bin to be accurately used to describe the transmitter subspace) (column 21, lines 33-51). A weight vector is set to some initial value (column 6, line 66 to column 7, line 4). The transmitter spatial vector weights within each SOP bin increases the power delivered to the desired receiver within one or more spatial subchannels while reducing interference radiated to unintended receivers (column 6, line 66 to column 7, line 4). This transmission will change the undesired receiver interference and therefore change the parameter set. This process will be repeated until the interference radiated to unintended receivers is removed or the transmission is complete. The system comprises a transmitter and a receiver capable of the claimed functions. While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. In re Schreiber, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997) (The absence of a disclosure in a prior art reference relating to function did not defeat the Board's finding of anticipation of claimed apparatus because the limitations at issue were found to be inherent in the prior art

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reference); see also *In re Swinehart*, 439 F.2d 210, 212-13, 169 USPQ 226, 228-29 (CCPA 1971); < *In re Danly*, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959).

"[A]pparatus claims cover what a device is, not what a device does." *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990) (emphasis in original). See MPEP 2114.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 24, 25, 47-50 and 52-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raleigh et al (US 6,144,711) in view of Haartsen (US 5,491,837).

Regarding claims 24, 25 and 52-54, Raleigh discloses an apparatus and a method of using the apparatus for generating weighted transmit signals with nulling in a communication system, wherein the communication system includes a transmitter and a plurality of receivers (figure 9), and wherein the transmitter includes a plurality of antennas (figure 11). A parameter set is initialized to some starting value (the reciprocity in a radio link that allows the undesired receive interference subspace in each SOP bin to be accurately used to describe the transmitter subspace) (column 21, lines 33-51). A weight vector is set to some initial value (column 6, line 66 to column 7, line 4). The transmitter spatial vector weights within each SOP bin increases the power delivered to



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the desired receiver within one or more spatial subchannels while reducing interference radiated to unintended receivers (column 6, line 66 to column 7, line 4). This transmission will change the undesired receiver interference and therefore change the parameter set. This process will be repeated until the interference radiated to unintended receivers is removed or the transmission is complete. Raleigh does not disclose the method comprises updating the weighting vector is based on feedback from the target receiver indicating which of the probe signals is better. Haartsen discloses a method of making periodic measurements to determine the best channel and power characteristics under the current radio environment (column 5, lines 32-40). The system will include a base station and a plurality of mobile stations (column 6, lines 13-21). The base station issues instructions to the mobile stations that prompt the mobiles to perform a series of measurements (column 6, lines 30-47). After making the measurements, the mobiles report the results to the base station (column 6, line 66 to column 7, lines 4). The measurements are used to calculate the path loss. The transmission to the base station will comprise RSSI measurements rather than channel estimates. This RSSI measurement is used with the base transmit power (column 7, lines 5-20). The best base and channel combination is chosen (column 8, lines 39-53). To adjust the transmit power, parameter  $b$  is adjusted and the system is weighted to minimize the transmit power (column 12, lines 1-17). Haartsen discloses by dynamically allocating channels and controlling the power of the transmissions, the system capacity can be maximized and the components of the system can enjoy extended battery life (column 3, lines 34-44). For this reason, it would have been obvious for one of ordinary

skill in the art at the time of the invention to combine the teachings of Haartsen into the method of Raleigh.

Regarding claims 47-50, Raleigh discloses the method stated above in paragraph 5. Raleigh does not disclose the method comprises updating the weighting vector is based on feedback from the target receiver indicating which of the probe signals is better. Haartsen discloses a method of making periodic measurements to determine the best channel and power characteristics under the current radio environment (column 5, lines 32-40). The system will include a base station and a plurality of mobile stations (column 6, lines 13-21). The base station issues instructions to the mobile stations that prompt the mobiles to perform a series of measurements (column 6, lines 30-47). After making the measurements, the mobiles report the results to the base station (column 6, line 66 to column 7, lines 4). The measurements are used to calculate the path loss. The transmission to the base station will comprise RSSI measurements rather than channel estimates. This RSSI measurement is used with the base transmit power (column 7, lines 5-20). The best base and channel combination is chosen (column 8, lines 39-53). To adjust the transmit power, parameter  $b$  is adjusted and the system is weighted to minimize the transmit power (column 12, lines 1-17). Haartsen discloses by dynamically allocating channels and controlling the power of the transmissions, the system capacity can be maximized and the components of the system can enjoy extended battery life (column 3, lines 34-44). For this reason, it would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of Haartsen into the method of Raleigh.

***Allowable Subject Matter***

9. Claims 6-8, 20-22, 26-33, 51, 56 and 57 are allowed.
10. Claims 14, 15, 18, 34-40 and 55 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

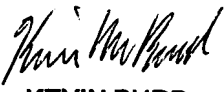
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M. Burd whose telephone number is (571) 272-3008. The examiner can normally be reached on Monday - Friday 9 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David C. Payne can be reached on (571) 272-3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kevin M. Burd  
11/1/2007

  
**KEVIN BURD**  
**PRIMARY EXAMINER**